Review and Renewal of Marine Finfish Aquaculture Licences in Bertraghbuí Bay, Co. Galway.

Site Refs: T09/107, T09/155, T09/155/1

Environmental Impact Assessment

Volume 1 – Non-Technical Summary

Produced by

AQUAFACT – APEM Group

On behalf of

Ardbear Salmon Ltd.

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Report Approval Sheet

Client	Ardbear Salmon Ltd.
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Background

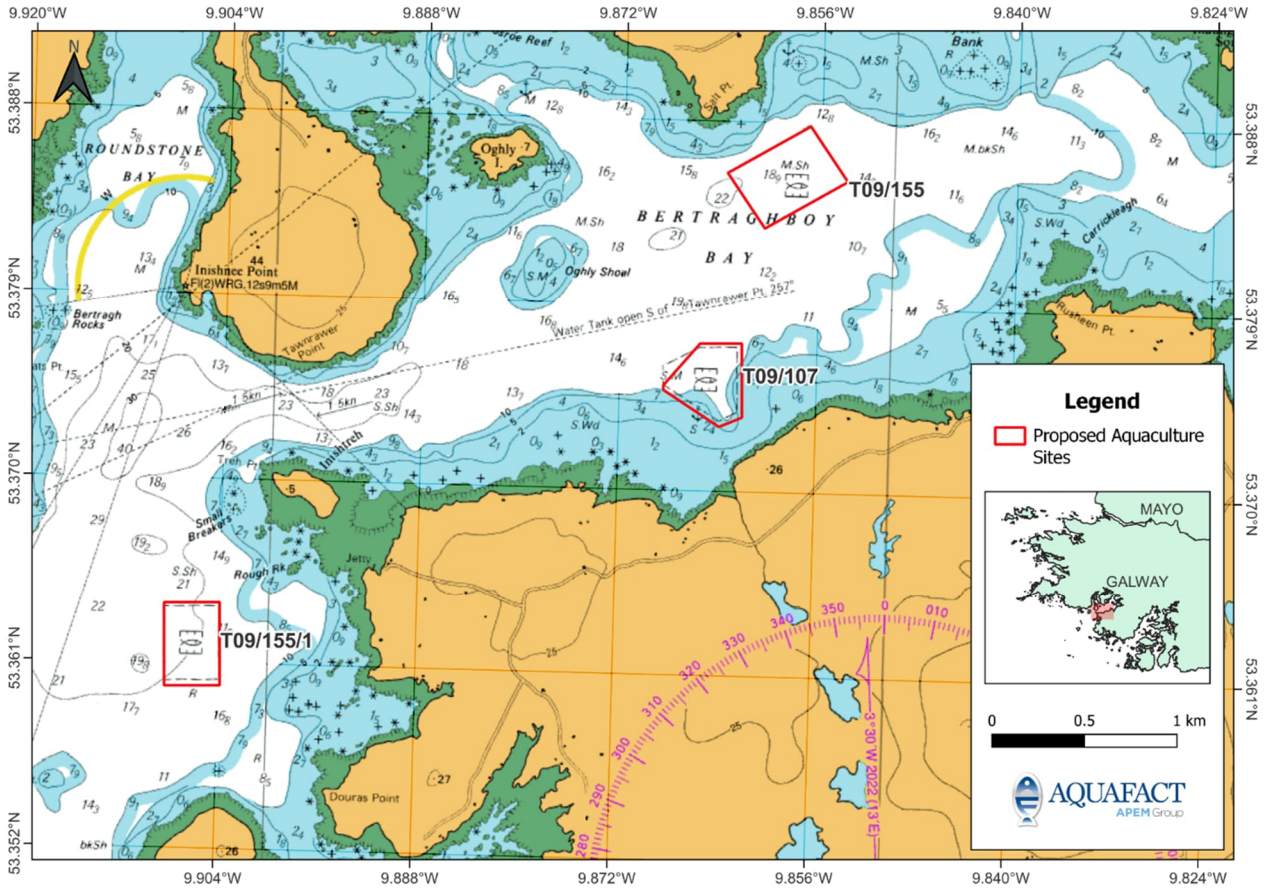
An Environmental Impact Assessment (EIA) was undertaken to inform the aquaculture licence review and renewal application for site references T09/107, T09/155 and T09/155/1. The full EIAR is summarised in JN1479 Bertraghbuí Bay EIA - Volume 2 - Main Report. This current report provides a *Non-Technical Summary* of the EIA.

The sites associated with the site references T09/107, T09/155 and T09/155/1 are the licences AQ169, AQ184 and AQ183, respectively; the sites are also referred to herein as the Sealax site, the Salt Point site and the Outer Bertraghbuí Bay (OBB) site, respectively. The site licences are held by Ardbear Salmon Ltd.

The application to approve renewal of the licence requests that the operating conditions attached to the licences be amended to allow the following:

- Sealax (T09/107) AQ169
    - Maximum Allowable Biomass (MAB) of 1,600 tonnes of salmon every 4 years.
- Salt Point (T09/155) AQ184
    - Maximum Allowable Biomass of 1,600 tonnes of salmon every 4 years.
- OBB (T09/155/1) AQ183
    - Maximum Allowable Biomass of 600 tonnes every 2 years.

If licensed, the proposed sites will be operated and managed with the benefit of these standards as a fully organic unit, using low stocking density, organic salmon smolts (young salmon) and organic feed.



Project Description

ARDBEAR SALMON LTD. are currently operating the sites in association with MOWI Ireland (formerly Marine Harvest Ireland), and management and personnel is supplied by Bifand Ltd (Bifand). ARDBEAR SEAFARMS LTD are the non-trading subsidiary of Bifand. Equipment, marine vessels, and related infrastructure as well as management and technical support are provided by MOWI Ireland. Farm production will follow MOWI Ireland's standard operating procedures.

The licenced areas will be used as follows:

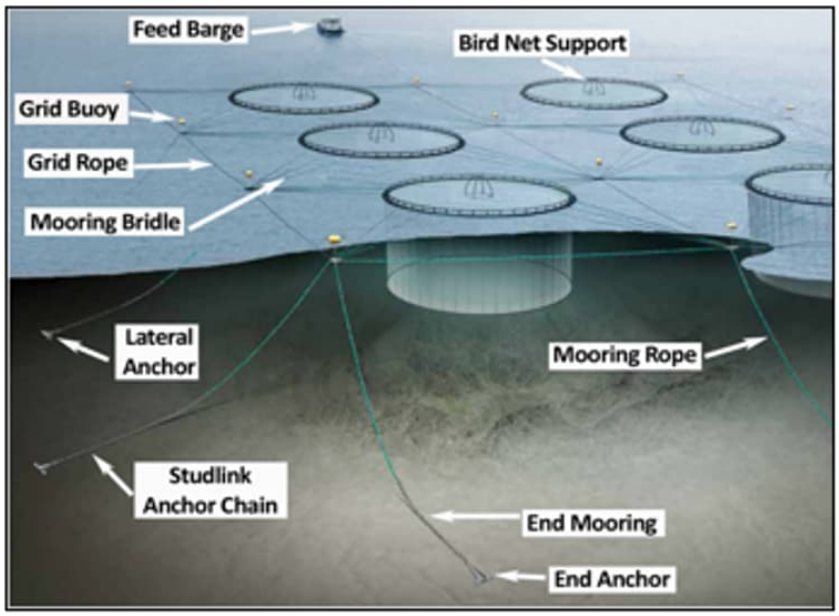
- Sealax site - grow out and harvest site.
- Salt Point - grow out and harvest site.
- OBB site - optional spring grow out and harvest site.

A maximum of 10 Aqualine pens will be deployed at each of the sites. The pens will be held in place in mooring squares. At the sites the mooring squares will be arranged in a 2 x 5 mooring grid.

The Sealax and Salt Point sites will be used alternatively for the production of salmon (*i.e.,* the sites will be used in rotation) while the OBB site is proposed as a back-up site for the production cycles at Sealax and Salt Point. The production cycle at Sealax (and Salt Point) starts with approximately 400,000 smolts added to the pens in October year 1 until harvest in December year 2 through March year 3. Between production cycles the Sealax and Salt Point sites will be empty for a total 24 months before the start of a new production cycle at the sites and introduction of smolts. If the OBB is used the site will be remain fallow for at least 20 months between the production cycles in the Sealax and Salt Pt sites.

What will the farm look like?

The farm structures will look very similar to what is currently on the sites. Subject to the approval of the licence renewal applications, there will be a maximum of 10 pens will be deployed at each site. Dark-coloured bird (top) nets will be used to protect the stock against bird predation throughout the life cycle. The existing shore-based facilities at Letterard, Glinsk (near Carna) will to be used.



How the fish farm will work

Throughout the growing period, the salmon will be fed organic rations from a feeding barge (see image opposite) deployed on the shoreward, most sheltered side of the site.

The feeds used for MOWI's organic farming operations are dry salmon feeds, manufactured to the appropriate Organic Standards. These utilise a limited selection of raw materials, mainly comprising trimmings-derived fish meals and marine oils, organic wheat and other organic plant raw materials, natural pigments, natural antioxidants, and only organic-approved vitamins and minerals.

The feed barge will feed the stock automatically throughout the day thereby optimising growth and minimising waste. Feed will be delivered directly to the shore facilities and from there to the barge.

When the farm is in full production it will be serviced by two 16m twin engine workboat, a 11m small tender work boat and a 7 m small craft. The vessels will be used to transfer feed, equipment and crew and will have the capacity to carry out a wide range of day-to-day farm tasks including towing, anchor handling and net changing and cleaning. These vessels will operate from the shore base where they will be moored when not in operation.

On occasion a well boat (similar to the vessel opposite) will be used for salmon transfer, counting, grading and bath treatment.

A proactive approach is taken to health management as vaccines are used to protect the fish against the most common diseases. If diseases do occur, their treatment is governed by specific Standard Operating Procedures (SOP's) under supervision and monitoring by the company's veterinary consultants. All tasks on the sites, from management of fish health to mooring grids and harvesting, are governed by written SOPs. Copies of many of these can be found in JN1479 Bertraghbuí Bay EIA – Volume 3 - Appendices.

Salmon Farming & the Environment

To address EIA obligations under the Directive 2011/92/EU as amended by Directive 2014/52/EU an EIA has been undertaken for the proposed operations at Bertraghbuí Bay, Co. Galway.

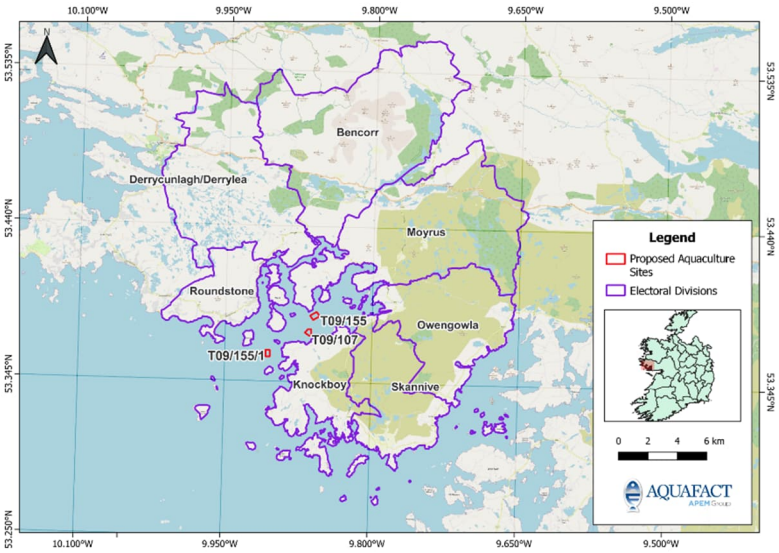
The main purpose of an EIA is to identify, describe and present an assessment of the likely significant impacts of a project on the environmental factors; the subject matters that must be considered in the EIA process are:

- Population and Human Health
- Biodiversity
- Land and Soils
- Water
- Air and Climate
- Noise
- Material Assets
- Cultural Heritage and Archaeology
- Landscape and Visual Resources
- Cumulative Impacts

Population & Human Health

Population

There are 7 Electoral Divisions (EDs) surrounding Bertraghbuí Bay, from west to east they are: Roundstone, Derrycunlagh/Derrylea, Knockboy, Bencorr, Moyrus, Skannive and Owengowla.



The total population across the 7 EDs in 2022 was 3,037 and this was made up of 2,084 households. The population in three of the EDs (Owengowla, Knockboy and Roundstone) increased by 14.9%, 5.3% and 3.3%, respectively, from 2011. Between 2011 and 2016, population decreased in Bencorr by 5.6%, Moyrus by 5.6%, Skannive by 3.3% and Derrycunlagh/Derrylea by 1.6%. Overall, an increase of 1.2% from 2016 to 2022 was observed across the seven EDs. The largest town in the Bertraghbuí Bay area is Roundstone. In 2022, Roundstone village had a population of 231.

In 2017, 283 people were employed in the aquaculture industry in Co. Galway (BIM, 2018). Of this, 49 people were employed in salmon aquaculture and 22 employed in smolt/parr/ova aquaculture (BIM, 2018). It is important to note that the BIM data on employment of people in aquaculture does not include processing plant, admin, diving, maintenance, veterinary and other service staff directly employed by the farm to service the Bertraghbuí Bay sites.

The existing aquaculture operations in Bertraghbuí Bay employs eight full time employees, 6 part time divers, a stock engineer and a part time electrician. Operations at the site are overseen by a site manager. The renewal of the aquaculture licences will maintain employment and will therefore continue to play a beneficial role to the local communities in the area. The renewal of the licence and approval proposed licence amendments will have no negative effects on the local population.

Human Health

The receiving environment for human health in the context of the proposed development is considered with respect to those effects to human population described above and those potential effects to the following factors; water quality, air quality, noise, traffic, socio-economics and tourism (including recreation) and water management as relevant to human health. Aspects of the receiving environment for these factors are outlined below in Land and Soils, Water, Air and Climate, Noise and Material Assets. In terms of Health and Safety, the sites operate to a Health and Safety management system as detailed in the Company's Management Plan relating to health and safety of staff. The Company's Management Plan contains Standard Operating Procedures (SOPs) that set out the lines of responsibility for overseeing all operational health and safety

systems and emergency procedures. Considering the above, the proposed operations at the farm and requested changes operating conditions will not give rise to negative effects on human health.

Biodiversity

Seabed (Benthic) Environment

As with any living organism farmed in an intensive manner, fish will deposit waste material (faeces and a small amount of uneaten food) over a localised area. Hydrodynamic modelling of the water movements coupled with the feed input and waste production show that there will be localised deposition immediately beneath the farm pens with a small amount of sediment deposition outside of the pen boundaries.

The bulk of the waste generated by a pen of large salmon is organic and therefore, is ingested by the resident flora and fauna on the seabed, many of which live beneath the surface. Faunal communities on the seabed respond in a predictable way to increases in organic matter input from fish farms. Populations of species that are very efficient at breaking down organic waste increase in response to the increased organic input and as the organic matter reduces in quantity the populations of these species reduce also.

Annual monitoring required as part of aquaculture licence conditions monitor these responses and ensure that the capacity of the faunal community that feed on the waste is not exceeded by the quantity of organic waste. Surveys carried out following fallow periods show little indication of the seafloor having been impacted from the previous production cycle. The level of waste deposition on the seafloor will not have significant effects on benthic communities.

Conservation Sites

The EIA examined in great detail the potential impacts of the farm on protected habitats and species of conservation sites that form part of the Natura 2000 network. These sites include Special Areas of Conservation (SACs) designated under the Habitats Directive (92/43/EEC) due to their significant ecological importance for species and habitats protected under Annexes I and II respectively of the Habitats Directive, and Special Protection Areas (SPAs), designated for the protection of populations and habitats of bird species protected under the EU Birds Directive (Council Directive 2009/409/EEC). It was determined that there would be no significant effects.

Marine mammals (seals and cetaceans) and freshwater mammals (otter)

There is potential that the proposed project may interact with marine and freshwater mammals and result disturbance and entanglement impacts.

The Harbour Seal (*Phoca vitulina*) and Grey Seal (*Halichoerus grypus*) are widespread species found around the Irish coast, with greatest concentrations on the south-west, west, and north-west coasts. Seal responses to disturbance can vary widely depending on the location and nature of the disturbance from increased alertness to movement towards the water and entering the water.

The farm is not located close to areas where seals reside, consequently significant disturbance effects to seals will not occur. While there is potential that seal species may predate on farmed fish and thereby become entangled in farm pens and nets, to date this has not been an issue at Bertraghbuí Bay. Therefore, it can be concluded that there will be no likely significant effects due to entanglement.

In addition, the cetacean species with the most sightings reported in the Bertraghbuí Bay are bottlenose dolphins, common dolphins and killer whales. Other species reported in the bay include the Atlantic white-sided dolphin, harbour porpoise, cuvier's beaked whale, long-finned pilot whale, sperm whale, striped dolphin, fin whale, and minke whale with most of the records classified as strandings. Cetaceans rarely interact with marine farm sites and so effects will not occur.

Birds

Given the location of the project, bird species with preference for foraging in terrestrial and intertidal shore habitats will not be impacted by the presence of the proposed aquaculture sites as the pens are located in the subtidal. The assessment of potential impact to marine bird species focused on species designated for SPAs that exhibit wide of ranging foraging behaviour including Arctic tern, Common Gull, Common Tern, Cormorant, Fulmar, Gannet, Guillemot, Herring Gull, Kittiwake, Lesser Black-backed Gull, Little Tern, Manx Shearwater, Puffin, Razorbill, Sandwich Tern, Shag and Storm Petrel. The assessment of potential disturbance impacts to birds concluded that the current level of aquaculture in the bay does not impact negatively on the bird populations in the area and the proposed farm operations will not result in significant effects in birds.

Salmonids

Given the nature of salmon farming there is potential that operations may directly impact wild salmon populations by increasing lice infection rate in wild salmon, disease spread, the introduction of therapeutants and genetic interaction between farmed and wild salmon.

The control and reduction of sea lice within farmed salmon pens is important to the welfare of wild salmon and sea trout as well as to the farmed salmon itself. The operator has developed a new non-medicinal strategy to control sea lice using cleaner fish and this is their main control strategy for sea lice. Statutory monthly monitoring and operator weekly monitoring in addition to coordinated treatment of all licensed sites within the bay through the single bay management plan once trigger levels have been breached, is imperative to minimise any potential risk on wild salmonids.

The use of chemicals, including antibiotics, has been reduced with the introduction of vaccines and the application of organic standards. In-feed antibiotic treatments are never used prophylactically for farmed

salmon. Modern treatments, in particular those for lice, break down and disperse rapidly post-treatment, with no prospect of deleterious impact on wild salmonid stocks.

Overall, given the measures, controls and monitoring that are will be in place at the fish farm, there will be no significant effects on fisheries.

Land & Soil

The seabed in the vicinity of the aquaculture site comprise is dominated by medium grained sand with mixes of shell. Results from benthic surveys carried out in 2020 indicate low levels of organic enrichment at the pens with the presence of opportunistic marine worms that thrive in enriched organic environments.

Modelling showed that the deposition of organic material from the farm will be confined to the immediate footprint of the pens and will be of an order that the faunal communities can assimilate with no lasting impacts; consequently, it is concluded that the proposed operations will not significantly affect land and soils.

Water

Soluble waste from fish farms consist of nitrogen products (mostly ammonia) and smaller amounts of phosphorus. Hydrodynamic modelling was carried out to simulate how the soluble wastes released from the farm would disperse. This modelling shows that the concentrations of both nitrogen and phosphorus fall well within the surface water Environmental Quality Standards (EQS) for high status coastal and transitional waters. Projected organic wastes from the farm are used to calculate amount of dissolved oxygen needed by anaerobic organisms to break down organic material (referred to as the water Biological Oxygen Demand [BOD]). Results show that while the maximum BOD concentration at the farm pens exceeds the EQS limit the concentration immediately outside the site boundaries are well below EQS limit. Any potential impact to water quality will be confined to the farm area and impacts beyond this are negligible; consequently, it can be concluded that the operations will not result significantly effect water quality.

Air and Climate

The air quality in the surrounding area is good with few industrial facilities emitting airborne waste. The main emissions associated with the aquaculture activities (*e.g.,* diesel generators, aerosols from sea lice treatments and dust from feed) currently occur with no evidence of impacts on air quality; it can be concluded that the proposed operations will not result in significant effects to air quality.

Noise

Small numbers of personnel and vessels move around the site on a daily basis throughout the production cycle. At certain times, heavy equipment, such as service vessels with cranes or well boats with deck-mounted cranes, fish pumps and grading equipment moor at the site, especially during harvest. The noise from the site tends to be consistent, of middle register and quite low in decibel terms. The noise levels currently generated at the aquaculture site will be maintained if the licences are renewed. There is no evidence that these noise levels are having any impact on the local communities; it can be concluded that the operations will not result in significant noise effects.

Material Assets

Traffic

The traffic associated with the existing aquaculture operations in comprises full-time employees. Articulated lorry brings one or two loads of feed to the site per week. A waste disposal lorry, which collects mortalities, the interval depending on the rate of mortality at the site. Additional traffic occurs during harvesting when three articulated lorries brings the fish to the processing factory at a regularity of four days per week. The harvesting season lasts up to three months every two years during the winter period.

As this is a licence renewal application, all aquaculture associated traffic makes up part of the daily traffic volumes in the area. The operations proposed will not significantly changes existing levels of traffic; there will be no significant effect on traffic.

Shipping and Navigation

As this is a licence renewal application, all aquaculture associated vessel traffic makes up part of the existing shipping levels in the area. Shipping traffic associated with the site will not significantly change due to the renewal license, changing the site boundaries or operating conditions attached to the licence; there will be no significant effect on shipping and navigation.

Commercial Fisheries

Operations at the existing licence sites do not significantly affect fisheries in the bay; there will be no significant effect on commercial fishing.

Aquaculture

The renewal of the licence and approval of the amendments proposed for the sites will see an increase in salmon production at the sites. The proposed operation will have a significant positive effect on aquaculture production levels in the area.

Tourism and Recreation

Tourism and recreation activities in the area currently take place in harmony with the existing aquaculture operation. The significance of the visual impact from all vantage points would be classified as slight or negligible; consequently, it is concluded that there will be no significant effect on tourism and recreation.

Waste Management

Waste management associated with the harvesting and processing of fish and the recovery of mortalities is governed by SOP which the operator shave in place at all facilities with requirements for the effective disposal of waste material; consequently, significant environmental effects associated with the production and disposal of waste material can be discounted.

Cultural Heritage and Archaeology

No archaeological features or indications of archaeological materials were identified from the surveys conducted over the proposed aquaculture site areas; consequently, it is concluded that there there will be no significant effects on heritage and archaeology.

Landscape and Visual Resources

The visual impact of a proposed development considers the sensitivity of an observer, or observer group, and the scale of the visual impact. Unlike the siting of a new farm, fish rearing pens have been a normal part of the landscape in Bertraghbuí Bay, and the shore base facilities a permanent and normal part of the shoreline during this period. The significance of the visual impact from all vantage points would be classified as slight or negligible; consequently, there will be no significant effect to landscape and visual resources.

Cumulative Impact Assessment

The only aspects of activities at the farm sites that could potentially give rise to in-cumulative impacts are discharges from the farms acting in combination with discharges from the sites. Hydrodynamic modelling exercises were undertaken to determine the fate of discharges from all the sites indicated that that there will be no cumulative impacts.